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ABSTRACT

Five options to simplify the needs assessment formula for Pell Grants are discussed, along with validation alternatives. Analysis focuses on three main effects of simplifications (data element reduction): the impact on the distribution of total Pell funds, the impact on individuals receiving Pell awards, and the impact of reducing error in the disbursement of Pell funds. Two data sources are used for the analysis: a sample of 1980-1981 recipients selected as part of the Pell Grant Quality Control study, and a sample of 1978-1979 applicants who did not reach recipient status. The efficacy of three validation options are examined: 100% validation using Internal Revenue Service 1040 forms, targeted validation using error-prone models, and expansion of current pre-established criteria targeting. Thirteen dimensions are used to assess each option including the number of data elements that colleges are required to verify through review of student-provided documentation, student burden, and institutional burden. The advantages/disadvantages of two additional validation options are also considered: validation of non-filing applicants, and validation of all corrections. Current policy and options for determining student dependency are addressed. Half the document consists of six appendixes providing summary tables for the simplification options and background data for each of the five options. (SW)

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COMPILATION OF QUALITY CONTROL FINDINGS: INFORMATION ON POLICY OPTIONS

Submitted to

OFFICE OF STUDENT FINANCIAL ASSISTANCE
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I

INTRODUCTION

Publication of the Pell Grant Quality Control Project Stage One reports has stimulated numerous discussions of various proposals to reduce program error. While the Quality Control study data can provide useful information about the effects of policy changes, even in cases where findings appear to support certain changes, sound policy making requires careful consideration of other quantitative and qualitative information as well as Department of Education (ED) priorities.

Given the central role of Quality Control study data it seems appropriate to compile data and analyses related to various policy proposals and options. In fulfilling this objective, this paper goes one step further. It also initiates the development of a structured methodology for developing and supporting initiatives for program modifications. Focusing on modifications such as validation, simplification, changes in eligibility rules, technological enhancements and reorganization or realignments, the framework must incorporate factors like funding levels and distributions, potential error reduction, understandability, and convenience.

Improvements in program operations are likely to require several coordinated changes in program design. There are interrelationships among the tools available to program administrators. For example, simplification alone will not have the same impact as a combined change in simplification and validation. While the analyses compiled in this paper point to important interactions among tools, the linkages between validation and simplification have not been fully specified nor operationalized in a structured methodology.

Background

After incorporating disbursement data from account reconciliation at the close of the 1980-81 program cycle, the Pell Grant Quality Control study reassessed the data on error in the program and confirmed its major conclusions published in April 1982. Analysis of data collected during the 1980-81 program year indicated a significant amount of error in the disbursement of Pell Grant awards.

Total dollar error in the Pell program for 1980-81 is estimated to be $278 per recipient, or $655 million of the $2.2 billion awarded to the 2.36 million recipients represented by our sample. An estimated 71 percent of the recipients received an incorrect award.

Key findings show:

- The $655 million in dollar error was composed of $524 million in overawards to 49 percent of the recipients and $131 million in underawards to 21 percent of the recipients.
- Seventy-one percent of the recipients had awards that were incorrect by $2 or more. Over 40 percent had errors in excess of $150, and over 30 percent had errors in excess of $250.
- Approximately 19 percent of the recipients should have been ineligible for any award. Eight percent of the recipients were ineligible because of a lack of an affidavit of educational purpose (AEP) and/or financial aid transcript (FAT).
- All errors related to institutional procedures resulted in $171 million in net overaward. Excluding statement of educational purpose and financial aid transcript error, this net overaward figure drops to zero. This net overaward figure is composed of $108 million in overawards and $108 million in underawards to recipients.
- The application data element contributing the most toward application-related error was adjusted gross income (AGI). If all AGI figures were correct, net overaward would decrease by about $100 million.
- The next largest contributors toward error were incorrect application entries for income of the dependent student and spouse, home equity, and household size.
- On average, the higher a recipient's family AGI, nontaxable income, assets, or own income, the higher the estimated student error.

- Overawards are clustered in higher income groups and underawards in lower income groups. The effect of obtaining correct financial information could therefore be to decrease the funding now going to higher income groups and increase the funding to lower income groups.

- Recipients flagged for validation tended to decrease their awards during the school year, while those not flagged for validation tended to increase their awards throughout the year.

Growing concern with the extent of error in the Pell program has led ED to initiate a series of corrective actions designed to reduce program error. Corrective actions have ranged from improving the Pell Application form through a major revision to the expansion of validation procedures, i.e., requiring income documentation from about 60 percent of 1982-83 Pell applicants.

Methodology

The data presented here were generated from the Pell Grant Quality Control study conducted in 1980-81, and from program data subsequently supplied to the Quality Control study during 1982. The Pell population represented by the sample data base is approximately 2.36 million 1980-81 recipients. Additional data on a sample of over 40,000 ineligible recipients from the 1978-79 program year was also made available to the Quality Control study by ED. Data on recipient's income, family situation, program eligibility, cost of attendance, and so forth came from:

- 4,304 interviews with student recipients
- 3,829 interviews with recipients' parents
- 5,161 Internal Revenue Service copies of tax returns for recipients and their parents
- 270 financial institutions, providing bank account information for a subset of recipients and parents
- 569 statements of recipients' or parents' home values provided by tax assessors (adjusted to local market values)
- 4,553 student record abstracts drawn from the financial aid and accounting files of 305 institutions the recipients attended
- 4,300 history transaction files showing the computer records of all student applications and corrections to applications

- 305 in-depth structured interviews with the financial aid administrators at the institutions included in the QC study.

Organization of the Paper

There are three main sections to this paper. Section 1 discusses five options which focus on simplification of the need assessment formula. Section 2 contains a two-part discussion of validation. The first part discusses the issues involved with major validation alternatives, while the second part focuses on five specific alternatives. Section 3 describes the relative merits and likely effects of three options dealing with dependency status.

2

SIMPLIFICATION OPTIONS

The Quality Control Study of the 1980-81 Pell program year indicated that there were significant problems of under and overpayment to recipients of financial aid as a result of misreporting of financial and family composition data. Study data supported the conclusion that much of the error in application data may be attributed to a complex and error-prone application process. Further analysis indicated that error in application data has the general effect of redistributing program funds from the very poorest students to middle-income students. Proposals to simplify the Pell need analysis formula are based on the proposition that Federal aid can be distributed equitably and efficiently using fewer, verifiable data elements. The analysis of the following options, therefore, focuses on three main effects of simplification:

- The impact on the distribution of total Pell funds
- The impact on individuals receiving Pell awards
- The impact of reducing error in the disbursement of Pell funds.

Simplification, or data element reduction, is only one of many program modifications which could be implemented to reduce program error and administrative costs and to increase program integrity and distributional equity. One of the major alternatives is validation, which is discussed in the following section. Indeed, optimal program restructuring would probably involve some combination of simplification, validation, and other program changes.

Analysis of the options presented here must be viewed as early and exploratory in nature. The purpose here is to assess the consequences of altering the payment formula by reducing the number of data elements. No attempt has been made to control for total program expenditures nor to constrain the amount of redistribution across students.

Two data sources are utilized in the analysis: 1) a sample of 1980-81 recipients selected as part of the Pell Grant Quality Control study; and 2) a sample of 1978-79 applicants who did not reach recipient status in 1978-79. These two samples combined, except for the difference in program year,[1] can be thought of as a sample of Pell Grant applicants. Given the nature of these samples, the analysis is thus limited to consequences on the pool of Pell Grant applicants. This may be a very serious limitation because one of the major consequences of changing eligibility rules would be on the size and composition of the applicant pool.

Error definitions used in this analysis differ from those used in **Quality in the Basic Grant Delivery System, Volume 1, Findings** of the Quality Control study, and error estimates reported here will be below levels reported in **Volume 1.**

The general approach followed in this section is to apply the program rules (1980-81 rules, option 1 rules, . . .) to the two data bases to calculate estimates for numbers of recipients, dollar awards, error levels, etc. These sets of estimates are then compared in order to determine the consequences of changing from the 1980-81 rules to the proposed options. Since the 1980-81 QC data base is so robust, the analysis is much more detailed for this group than for the 1978-79 applicant, non-recipients. In fact, the data for applicant, non-recipients should be treated as only rough indicators.

A Framework for Discussing Simplification Options

The Pell Grant Application contains between 30 and 40 questions; the answers to the questions are used to calculate the student aid (eligibility) index. When combined with cost of attendance and enrollment status, the index determines the size of the Pell Grant. These application questions are used to determine the values for "formula

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[1]This two-year difference in program year, however, has a potential for understating the consequences of proposed eligibility changes.

data elements." For example, ED refers to dependency status as a single formula data element which is determined by the responses to the following six application questions:

- Student lived with parents more than six weeks in the prior year?
- Student will live with parents more than six weeks in the current year?
- Student claimed by parents as a tax exemption for the prior tax year?
- Student will be claimed as a tax exemption for the current tax year?
- Student received more than $750 support from parents in prior year?
- Student will receive more than $750 support from parents in current year?

Similarly, the three equity elements--home equity, business equity, and investment equity--are each based on the responses to two questions. Thus, the terminology currently in use can cause confusion.

For these reasons discussion of simplification of formulae requires a taxonomy. While it may not be possible to develop a single taxonomy which can be useful in all situations, Table 2-1 presents a taxonomy that is useful for the discussions of the four simplification options which follow.

There are three groups of data elements. The first group--AGI, taxes paid, and non-taxable income--represents formula elements which are present in all options. The third group--home equity through household size--consists of formula elements present in the 1980-81 and 1982-83 formulae, but which are excluded from the four options. The middle group--tax exemptions through medical/dental expenses--represents the formula items whose inclusion or exclusion differentiate the basic four options. For example, Option 4, referred to as the 8-element formula, includes all 5 of the elements in the middle group, excludes all 9 elements from the third group, and represents the lowest degree of simplification among the 4 options. Option 3 (the 7-element formula) represents a slightly higher level of simplification in that one more data element (medical/dental expenses) is excluded relative to Option 4.

Data Elements (1)	Number of Questions on Application	Option 1 (4-Element Formula)	Option 2 (6-Element Formula)	Option 3 (7-Element Formula)	Option 4 (8-Element Formula)
Adjusted Gross Income	1	X	X	X	X
Taxes Paid	1	X	X	X	X
Non-Taxable Income	3	X	X	X	X
Tax Exemptions	1	X	X	X	X
Liquid Assets	4		X	X	X
Student/Spouse Income	1		X	X	X
Number in Postsecondary Education	1			X	X
Medical/Dental Expenses	1				X
Home Equity	2				
Business Equity	2				
Student Social Security Benefits	2				
Student VA Benefits	2				
Student/Spouse Expected Income	4				
Earned Income Portions	2				
Marital Status	2				
Unreimbursed Tuition	1				
Household Size	1				

(1) **Note:**
- o Dependency Status (6 questions) determines which schedule applies.
- o Tax Exemptions are not currently used to calculate eligibility but substitutes for Household Size.
- o Student Social Security Educational Benefits and Student/Spouse Expected Income are in the 1982-83 formula but not in the 1980-81 formula upon which numerical analyses are based.

TABLE 2-1

SIMPLIFICATION OPTIONS

Option 3 (6-element formula) excludes an additional element (number in postsecondary education) compared to Option 3. Finally, Option 1 (4-element formula) represents the highest degree of simplification by omitting liquid assets, an item which was included in Option 2.

Thus, the four options can be viewed along a continuum with Option 1 incorporating the most and Option 4 the least simplification. In the following sections, each of the five simplification options is discussed in terms of the likely effects on number of recipients, program expenditures, redistribution and program error, and the possible advantages and disadvantages of each option are enumerated.

Three other points arise in the table:

- Dependency status is not included as a line item, even though it is a critical data element.
- Tax exemptions have been used in place of household size for all four options.
- Two elements--Social Security educational benefits and student/spouse expected income--are not present in the 1980-81 formula but were introduced for 1982-83.

While the above taxonomy should be useful for the following discussion, it should be noted that alternative taxonomies may be more appropriate in other contexts. One possible taxonomy would have the following major categories: 1) additions to ability to pay (possibility further categorized by whether it was income or assets or whether it was parental or student); and 2) reductions to ability to pay (family's basic needs, educational expenses, etc.).

Description and Background of the Options

Option 1: AGI, Non-Taxable Income, Taxes Paid and Number of Exemptions -- Option 1 proposes an extremely simple need analysis formula. Family income is defined as adjusted gross income plus nontaxable income minus Federal taxes paid. Household size is replaced by number of exemptions claimed. Dependency status also comes into play in this formula because it determines the tax rate on discretionary family income. For the purpose of this report, the marginal tax rates are set to those used in the 1980-81 Pell formula.

Option 2: AGI, Taxes Paid, Number of Exemptions, Nontaxable Income, Liquid Assets and Dependent Student Income (OSFA Proposed "6 Data Element Formula") -- Option 2 represents the proposed "6 Data Element Formula" put forth in 1982 by the Office of Student Financial Assistance (OSFA) with the exception that number of exemptions replaces household size in the formula. Liquid assets include cash, savings and checking account funds, plus net value of investments for parents or independent students, and cash, savings, or checking accounts of dependent students. Liquid assets and income of dependent students are taxed independently in the formula, at the rates used in the 1980-81 Pell formula.

Option 3: AGI, Taxes Paid, Number of Exemptions, Nontaxable Income, Liquid Assets, Dependent Student Income and Number in Postsecondary Education -- Option 3 is similar to the OSFA "6 Data Element Formula" introduced in the summer of 1982, with two modifications. First, the Option 3 formula substitutes number of exemptions for household size. Second, it adds the allowance for additional household members in postsecondary education (PSE). With the addition of the PSE allowance, Option 3's impact on simplification is limited to removing the following items--business equity, farm equity, home equity, unusual medical expenses, student social security and VA

benefits, secondary school tuition, and the employment expense offset. Changing from household size to number of exemptions provides additional simplification (see Option 5). Option 3 is identical to Option 2 except for the addition of the PSE allowance.

Option 4: AGI, Taxes Paid, Number of Exemptions, Nontaxable Income, Liquid Assets, Dependent Student Income, Number in Postsecondary Education and Unusual Medical Expenses* -- Option 4 differs from Option 3 only by adding unusual medical expenses to the data elements used to compute student eligibility. Option 4 differs from Option 2, the "6 Data Element" formula by the addition of both medical/dental expenses and number in postsecondary education (PSE). (See Appendix A, Figures A-4 and A-5 for further analysis of the impact of the PSE allowance.) The addition of the unusual medical expense allowance has a very small impact on the Pell population because few applicants claim medical expenses in excess of 20 percent of discretionary income, and in many of these cases income is often low enough that students' awards would not be affected by the additional allowance. As a result, the difference between Option 4 and Option 3 is negligible; due to rounding, there is often no difference in the aggregate statistics for the two options.

Option 4 simplifies the 1980-81 Pell formula by: (1) eliminating consideration of home, business and farm equity; (2) eliminating the employment expense offset; and (3) replacing household size with number of exemptions.

Option 5: Replacing Household Size With Number of Exemptions From Prior-Year Tax Form -- Option 5 is the most conservative option considered here in that it involves

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*This formula is quite similar to the ten item formula reviewed by OSFA in the winter of 1982, except that number of exemptions has replaced household size. The discrepancy in number of elements reflects different conventions for identifying formula elements.

changing a single element in the existing need analysis formula. Data on the number of exemptions claimed by parents or by independent students is already included on the Pell application. For students not filing Federal tax returns, the definition of household size would be changed to the definition of exemptions used on tax returns. OSFA has devoted a great deal of effort to study the differences in the definitions of household size and number of exemptions. Particular emphasis has been placed on the impact of multiple exemptions for the aged and blind, and possible problems arising from the fact that dependent family members may not always be claimed as tax exemptions. Data from the Quality Control Stage One study indicate, however, that household size is among the most error-prone items on the Pell application. Approximately 22 percent of all recipients in the study were found to have reported household size incorrectly, resulting in a net error of $33 million. Number of exemptions was discrepant in five percent of sampled cases.

Likely Effects of the Options

The likely effects of program options can be measured along various dimensions. Among these dimensions would be:

- Number of recipients
- Total program awards
- Program error
- Proportion of total awards going to lower income recipients
- Average award
- Changes in awards
- Percentage of non-recipients gaining eligibility

Table 2-2 summarizes the data available for the five options along these dimensions. Each of the following paragraphs discuss the outcomes for each of the five options along one of the dimensions.

PROGRAM OUTCOME OR CHARACTERISTICS[1]	BASELINE 1980-81	OPTIONS 1	2	3	4	5
Number of Recipients ($ millions)	2.005	2.062	1.934	2.050	2.050	2.013
Program Awards ($ billions)	1.829	1.928	1.752	1.853	1.857	1.882
Total Program Error ($ millions)	100	45	-5	39	35	78
% Cases with Error Over $2	40	21	29	33	33	3
% Awards Going to Lower Income Cases[2]	59.5	59.2	63.2	59.3	59.2	59.3
Average Award	$ 912	$ 935	$ 906	$ 904	$ 906	$ 910
% With Award Changes						
Within $2	- -	11	47	49	49	87
Within $150	- -	69	76	82	83	95
With Increases	- -	65	10	12	12	8
Non-Recipients						
% Gaining Eligiblity[1]	- -	24	11	17	17	3

- - Inapplicable
1. All entries based on verified data, except estimate of non-recipients gaining eligibility.
2 Lower income as defined in text
3 Not available

TABLE 2-2

LIKELY CONSEQUENCES OF SIMPLIFICATION OPTIONS

Number of Recipients -- The 1980-81 formula generates slightly more than 2 million eligibles from the 1980-81 recipient data base. Option 1, the most dramatic simplification, could increase the number of recipients by about 3 percent (2.005 to 2.062 million), and is a fairly small increase when one considers that about 9 data elements were eliminated. Option 2 yields an overall reduction in number of recipients since it includes an additional 2 resources--liquid assets and student/spouse income--in the payment formula compared to Option 1.

Option 3 shows an increase in number of recipients from Option 2. This increase is the result of including the special allowance for number in family pursuing postsecondary educations.

Option 3 and 4 have about the same 2 percent increase (to 2.05 million). The difference between Options 3 and 4 is the exclusion of extraordinary medical/dental expenses, and the similarity of the impact estimates reinforces the notion that few families use this feature.

Option 5, replacing household size with number of exemptions, has the smallest change in number of recipients. This would be expected since the two items are so closely related.

Program Expenditures -- The pattern for program expenditures mirrors that for number of recipients: only a 5 percent increase from the base to Option 1 in spite of a dramatic reduction in the number of data elements. Adding resources to the payment formula, as was done between Options 1 and 2, results in a reduction in program expenditures of over $200 million. The change in expenditures between Option 2 and Option 3 further highlights the importance of the special handling of number of family members in postsecondary education in that it almost compensates for the decreases associated with the resources added when going from Options 1 to 2.

Program Error -- All five of the proposed options would reduce program error. Even the simplest change, Option 5's switch of household size and number of exemptions, results in sizeable error reduction ($22 million). Option 2 would result in a net underpayment of $5 million as a result of eliminating a good number of the error-prone elements from the 1980-81 formula.

Cases Without Error -- Using a very narrow $2 tolerance for error reveals that all of the options show a decrease in the percentage of cases with error.

Distribution of Awards -- The next row of Table 2-2 defines lower income cases as independent students with verified AGI of under $3,000 and dependent students with parental AGI of under $12,000. About 59 percent of program expenditures go to these lower-income cases with only one exception: Option 2 would distribute about 63 percent of program funds to this group.

Average Award -- The average award differs by $31 at most among all options.

Award Changes -- Except for Option 1, award changes seem to be fairly stable across the options. Option 1 represents the greatest simplification with 65 percent of the recipients having award increases, whereas the other options have between 8 and 10 percent of the recipients receiving higher awards.

Non-Recipients Gaining Eligibility -- These entries indicate the greatest potential for program impact with between 11 and 24 percent of 1978-79 applicant, non-recipients becoming eligible as a result of the simplification options. Option 1, with 24 percent, has the greatest potential for expanding eligiblity and program expenditures. As already noted, these estimates may be seriously understated because of the two-year difference in data vintage.

Other Advantages and Disadvantages of the Options

All the options would simplify the Pell Grant eligiblity formula and this should result in the following common advantages:

- Reduced applicant burden

- Reduced processing and corrections costs
- Reduced institutional burden
- Streamlining of validation procedures

The degree to which these advantages differ across the options would depend on the number of elements included in the option (as summarized in Table 2-1), and the number of difficult to verify elements remaining in the formula.

Line 1 of Table 2-3 presents the number of difficult to verify items under the 1980-81 rules and the 5 options. Clearly, Option 1 is superior on this dimension with only one difficult to verify item (non-taxable income); Option 2 adds liquid assets; Option 3 adds number in college; and Option 4 adds medical/dental expenses.

The second panel summarizes information concerning the sensitivity of the options to special circumstances associated with data elements. The 1980-81 formula, of course, is most sensitive; the Option 1 formula, the least sensitive. Option 2 brings in sensitivity to differences in student/spouse income and liquid assets; Option 3, number in college; and, finally, Option 4 brings in sensitivity to extraordinary medical/dental expenses.

	BASELINE 1980-81	OPTIONS 1	2	3	4	5
Number of Difficult to Verify Data Elements	9	1	2	3	4	8
Award Sensitive to:						
Number in College	yes	no	no	yes	yes	yes
Student Income	yes	no	yes	yes	yes	yes
Medical/Dental Expenses	yes	no	no	no	yes	yes
Employment Related Expenses	yes	no	no	no	no	yes
Tuition	yes	no	no	no	no	yes
Liquid Assets	yes	no	yes	yes	yes	yes
Home Equity	yes	no	no	no	no	yes
Business/Farm Equity	yes	no	no	no	no	yes

TABLE 2-3

SUMMARY OF QUALITATIVE CONSEQUENCES OF SIMPLIFICATION OPTIONS

3

VALIDATION OPTIONS

The major purpose of validation is to reduce the amount of payment error in the Pell Grant Program. While validation alone is effective, strategies that combine validation with other changes may be more effective. Early analyses have been limited to specifying the trade-offs among validation approaches. While useful, these must serve as building blocks in developing a more integrated approach that combines several design changes.

Choosing the best validation scheme requires identifying the most cost effective method for reducing payment error. This requires answering five interrelated questions:

- Is error completely random and equally distributed, or is error concentrated in a relatively small number of cases?
- If error is concentrated, is it possible to identify these error-prone cases?
- How many cases should be selected for validation, i.e., how extensive should validation be?
- How many items (AGI, taxes paid, household size, etc.) should be validated, i.e., how intensive should validation be?
- What are the costs and burdens on students, parents, institutions, and the Federal government?

Information available indicates that error is concentrated and that the error-prone cases can be identified. The three remaining questions which focus on extensiveness, intensiveness, and costs are unresolved. The answers to these questions would determine the efficacy of the three major validation options:

- 100 percent validation using 1040 Forms
- Targeted validation using Error-Prone Models (EPM)
- Expansion of current Pre-Established Criteria (PEC) targeting.

The following discussion focuses on these three major validation options.

Current Policy

During the 1980-81 and 1981-82 school years, about seven to eight percent of eligible applicants were selected for validation--a low level of extensiveness. Validation required that seven items be documented:

- Dependency status
- Adjusted Gross Income
- Federal income taxes paid
- Household size
- Number in college
- Other nontaxable income
- Dependent student/spouse net income.

This represents a fairly intensive level of validation because some of the items are difficult, even impossible, to document or verify.

During the 1982-83 school year, ED opted for a far more extensive but less intensive validation strategy. Initially, all eligible applicants were flagged for validation of at least two items--Adjusted Gross Income and U.S. Taxes Paid. After a certain point in time the 100 percent selection was abandoned in favor of more selective or targeted criteria. These more selective criteria involved PEC similar to those used in the 1980-81 and 1981-82 school years. However, about 60 percent of the 1982-83 applicants were flagged for validation of at least two elements.

Thus, ED has used procedures which nearly span the full ranges of extensiveness and intensiveness. They have targeted; they have selected all; they have required the validation of many items; and they have required validation of few items.

Issues Involved With Major Validation Alternatives

Selection of one method of validation over another involves weighing the various dimensions associated with the costs, effectiveness, and control of the validation strategies. In this section several dimensions of interest are discussed and each of the

three approaches is assessed relative to these dimensions. Table 3-1 summarizes the assessments for the various dimensions.

Targeting -- This dimension involves the extent to which validation resources are focused on those cases with the highest pay-off in terms of avoiding overpayments. The QC Stage One study demonstrated that error is concentrated in relatively few cases and these cases can be identified based on applicant information.

Poor targeting is intrinsic to 100 percent validation. Since both EPM and PEC are intrinsically targeted, they fare much better in terms of this dimension.

Since EPM models are developed with targeting built in by the explicit inclusion of interactions in the sequential search algorithm, this method is likely to perform better in terms of targeting. The PEC are also reviewed by OSFA and revised to improve targeting; however, PEC do not include interactions at as high a level as the EPM approach.

Intensity -- This dimension involves the number of data elements which institutions are required to verify through review of student-provided documentation. An extensive level of validation, such as 100 percent, preempts the use of intensive validation because of the cost and burden imposed on the institution. Both of the targeting techniques allow ED flexibility in terms of intensity.

Error-Prone Modeling, since it uses error likely to be removed by a given intensity of validation, allows for finer control of this program parameter. PEC on the other hand, are based on the subjective likelihood of a case containing an error rather than on the likelihood of removing that error given the intensity of validation.

Student Burden -- There are two types of students whose burden are of interest: students who are error-free and students who have erroneous applications. The burden on students with erroneous applications is equally high for all methods, if they are selected. However, the 100 percent approach imposes unnecessary burden on error-free students. This unnecessary burden is considerably lower for the two targeted

Characteristics	Validation Approach: 100%	Validation Approach: Targeted Using EPM	Validation Approach: Targeted Using PEC
Targeting	Low	High	Moderate
Intensity	Low	Flexible and Related to Effectiveness	Flexible
Burden on Error-Free Students	High	Low	Moderate
Institutional Burden	High	Low	Moderate
Ease of Verification	High	Controllable	Moderately Controllable
Quantification of Cost-Effectiveness Trade-Offs	N/A	High	Not Easily Assessed
Alignment of Selection Criteria and Items Validated	N/A	High	Low
Control of Number of Validations	N/A	Good	Difficult
Temporal Bias	None	None	High, if ceilings are low
Exclusiveness of Criteria	N/A	Perfect	Considerable Overlap
Ability to Separate Circumstance from Error-Proneness	N/A	Good	Low
Simplicity or Intuitive Appeal	High	Low	Moderate
Burden on the Department	Low	High	Moderate

TABLE 3-1

CHARACTERISTICS OF THREE APPROACHES TO VALIDATION

approaches and would be lowest for the EPM approach which has the best targeting.

Institutional Burden -- Requiring validation, given a level of intensity, of a student places a burden on institutions. As the number of required validations increases, the total burden increases. This burden is likely to be lowest for that approach which is best targeted. If EPM is better targeted, EPM would impose the lowest burden on institutions, other things being equal.

Ease of Verification -- If validation focuses on few items, ED can focus the effort on those items which are easiest to verify and document. Since ease of validation, in terms of the cost of validation, can be incorporated into development of EPM, this method would allow better ED control of this validation consequence. It is better to require more validations of fewer, easily-verified items than to require fewer validations of more, difficult-to-verify items.

Quantification of the Cost-Effectiveness Trade-Offs -- One hundred percent validation is based on the assumption that the value of the benefits exceeds the cost of universal validation. PEC, while they are developed with effectiveness in mind, do not link effectiveness (as determined by extensiveness and intensiveness) with the cost or the intensity of the procedure. The missing link is that PEC do not allow the selection criteria to be related to the intensity (and cost) of validation.

Alignment of Selection Criteria and Items Validated -- EPM selection rules are determined using the level of error likely to be removed by validating specific data elements. If one type of validation required that four items be validated and another required validation of eight items, the two sets of EPM selection rules developed for these validation types would not be the same. The PEC approach does not explicitly include this linkage.

Control of Number of Validations -- PECs as currently employed, involve priority sequencing and separate ceilings for each PEC. Altering the number of validations is most often accomplished by raising one of the ceilings. However, raising the ceiling of

a high priority PEC (one of the first applied) may simply reduce the number of validations selected by subsequent lower-priority PEC.

EPMs, however, involve the ranking of mutually exclusive groups, i.e., a student falls into one and only one EPM group, according to error likely to be removed. Increasing the number of validations would be accomplished by selecting students in the next highest error group.

As a result of these differences in ranking, sequencing, ceilings, exclusivity and prioritization, EPM selection rules allow considerably finer tuning on this crucial policy parameter.

Temporal Bias -- This is a potentially important consideration to the extent that temporally later applicants tend to be more error-prone. It cannot be determined at what point the various PEC ceilings will be reached. If a particular PEC is quite effective and its ceiling is reached early in the year, all the later, highly error-prone applicants who only meet that PEC escape validation, avoid the need to correct their applications, and possibly receive high overpayments.

EPMs can be designed based on the entire processing year and thus avoid potential temporal bias.

Exclusiveness of Criteria or Selection Groups -- Given the structure of the PEC it is possible that a particular student might meet more than one of the criteria. This satisfaction of multiple PEC makes it difficult to assess the relative effectiveness of the various criteria since effectiveness would change significantly simply because ceilings or sequencing is changed.

A student can satisfy only one EPM selection criteria; as a result, evaluation of the relative effectiveness of the various EPM criteria is greatly facilitated.

Ability to Separate Circumstance From Error-Proneness -- Students who defraud the program do so by understating income and assets, and overstating family responsibilities and expenses. Thus, applications from truly low-income students look

like applications submitted by potential cheaters. Many of the PEC are based on the appearance of special circumstances related to the inability of families to be self-supporting. As a result, these PEC would select a high proportion of truly needy students in order to pick up the fewer students who falsely represent themselves as needy.

EPMs are developed on the entire array of application data simultaneously. As a result, simply appearing needy might not be sufficient to trigger selection; EPMs may require that the student appear needy and simultaneously satisfy other conditions which might be able to differentiate the "truly needy" from those erroneously appearing to be needy.

Simplicity -- Validating all students is certainly the simplest approach. Once targeting is introduced, this simplicity evaporates. Since EPM models are developed with the use of sequential search algorithms which involve multivariate statistical techniques and extensive interactions, they are extremely complex. The PEC, developed using logic, historical patterns, and fewer interactive conditions, have higher intuitive appeal and are simpler to understand, program, and explain.

Burden on ED -- EPM requires regular reestimation--annually and whenever there are significant or substantial program changes. In addition, the development involves fairly difficult statistical procedures, complicated multi-stage computer programming, and cost-effectiveness analysis. While the development of PEC requires similar skills and resources, they are less demanding of ED resources because the skills do not have to be performed simultaneously as a major research effort.

Option 1: 100 Percent IRS 1040 Validation

Proposed Policy

This policy changes program emphasis to proving need from looking needy. There are two variants of this proposed change. One variant (Option 1A) would require

tax forms from either the parents of dependent students or from the independent student and spouse. The second variant (Option 1B) would require tax forms from both parents and students regardless of dependency status.

Likely Effects of Proposed Change

Volume 1 of the QC study provided an estimate of the AGI error which would be uncovered using the two tax forms approach (Option 1B). There was about $100 million of AGI error, and inclusion of taxes paid and medical/dental expenses would leave that estimate virtually unchanged.

The impact of requiring tax form documentation from either the dependent parent or independent student is likely to uncover only about two-thirds, or about $67 million.

Advantages of 100 Percent 1040 Validation

- There is a reduction of program error associated with tax form items.
- Program emphasis changes from looking needy to proving need.
- 100 percent 1040 validation focuses on easily verified items.
- Eliminating erroneous overpayments reduces program cost.
- Any change in distribution of benefits is in the direction of the ideal or intended distribution.
- There is equal treatment of all students.

Disadvantages of 100 Percent 1040 Validation

- Burden is placed on all students in order to catch a small number of students with erroneous application data.
- There is no assurance that submitted tax documents are authentic.
- Error on items other than tax form items is not controlled.
- The burden on schools is large.

Summary

One hundred percent validation of IRS forms provides a means of greatly increasing the probability of accuracy in the determination of student eligibility for

Pell Grants. All students would be treated equally. One hundred percent validation should reduce error by increasing the accuracy of reported data on income and family size, and also by discouraging fraudulent applications. This option does not, however, provide any guarantee against more sophisticated fraud, such as the submisssion of false tax returns, nor does it provide a means of controlling for error on items not verifiable using tax forms. The administrative burden on institutions associated with one hundred percent validation would be extremely great and delays resulting from such a burden could directly impact on students.

Option 2: Targeted Validation Using Recipient Error-Prone Model

Proposed Policy

The proposal would not replace the PEC currently used by ED to select cases for validation. These PEC would be supplemented by rules developed using EPM.

Likely Effects of the Change

As part of Stage Two analysis of Pell QC data, error-prone models were developed based on a particular type of validation.[1] Types of validation differed according to which items would be documented or verified. For each model, the trade-offs between error removed and the number of cases which would have to be validated were mapped out.

The eight models were highly target effective in identifying error-prone cases. The models were able to identify the 20 percent of the cases which contained between 65 and 95 percent of the error associated with the items to be validated.

Using these trade-offs and assumed cost levels for the eight types of validation allowed ED to select the most cost-effective strategy.

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[1] See **Development and Use of Error-Prone Models to Supplement Pre-Established Criteria in Selecting Pell Grant Recipients for Validation,** prepared by Advanced Technology, Inc., and Westat, Inc., December 1982.

As a result, ED will be able to select additional cases for validation and these cases are likely to yield sizeable award changes.

Advantages of Using Recipient EPM to Select Additional Recipient Cases

- EPM provides for effective targeting.
- EPM is based on QC documented error rather than change in eligibility indices.
- Selection criteria are aligned with the items to be validated.
- Overlapping or redundant selection criteria are omitted.
- Trade-offs between number of cases to be selected and amount of error likely to be removed are quantified.
- Burden on error-free students is lower.

Disadvantages

- EPMs can only currently be used as a supplement to existing PEC.
- EPMs are difficult to understand.
- EPMs need to be reestimated and reanalyzed systematically.

Summary

Error-prone modeling provides a means of identifying those cases responsible for the great bulk of identifiable error in the Pell program. This reduces the burden of validation on institutions and on error-free students. EPM allows for the coordination of selection criteria with items to be validated, i.e., it can be used to identify cases likely to have particular types of error. Use of error-prone models depends, however, on regular and careful assessment of program data, including case error for a representative sample of recipients. This requires considerable analytic effort. The use of EPM is currently restricted to supplementing the existing edit and PEC validation, as error data on non-recipient application is not available.

Option 3: Expanded PEC Validation

Proposed Policy Change

This option would increase the number of validations by raising the ceilings on the more effective PEC.

Likely Effects of the Proposed Option

It is difficult to assess the relative merits of using an expanded PEC ceiling rather than EPM selection because available data is not comparable for the two methods.

However, analysis performed in September 1982 addressed a similar policy question. That analysis compared the relative merits of three approaches to selecting additional validation cases. The three methods were EPM, expanded PEC, and use of EPM criteria developed by Applied Management Systems (AMS).

As already noted, the analysis is subject to serious limitations and the conclusions should be viewed accordingly.

The intent of that undertaking was to determine whether the approach to AID modelling, which involves the use of grouped continuous variables derived from application data, could identify error-prone groups among non-validated recipients. The QC study also measured the ability of AMS's error-prone model to identify such groups in QC sample data. Finally, the QC study sought to determine whether AID error-prone modeling was more effective than simply raising the PEC ceilings. The revised findings support the view that error-prone modeling could "catch" more error among non-validated students than would simply raising the number of students validated under the existing PEC system for this sample. This analysis was not designed to compare the effectiveness of AID modeling as a replacement for PEC. Such an analysis would involve an entirely different set of analyses based on applicant data of validated and non-validated recipients.

Advantages of Expanded Selection

- Edits for PEC are easy to understand.
- PEC can be targeted to a certain degree.
- The burden of 100 percent validation could be lowered.
- PEC appear to have been reasonably successful.
- PEC have been refined based on performance over time.

Disadvantages

- It is difficult to control number of selections using PEC edits.
- There is a temporal bias in applying PEC.
- Overlap and sequencing make it difficult to project effectiveness of additional validation.

Summary

Expanded use of the Pre-Established Criteria (PEC) to select cases for validation offers the possiblity of maximizing current program knowledge to reduce error. Raising the ceilings for those PEC found to be most effective would catch more error. It is, however, difficult to predict which PEC will prove most effective over time, and it is also difficult to predict just how many cases might trip the PEC selection mechanism in advance. Because PEC may overlap, and because of the manner in which the PEC are sequenced, it is difficult to assess their effectiveness.

Option 4: Validation Of Non-Filers

Proposed Policy Option

This option involves selection of all non-filers for validation of non-filing claim. If the applicant can verify that they are non-filers, no further documentation would be required. Students who fail to satisfactorily document that they are non-filers would be subjected to complete validation. It can be thought of as an additional pre-established criteria and a low-intensity validation.

Likely Affect of the Change

Between one-sixth and one-fifth of recipient cases claimed to be non-filers on their applications. As Table 3-2 indicates, the average error for non-filers is only $57. However, the average error for the seven percent who erroneously claimed to be non-filers is considerably higher ($135) than the average error for those correctly claiming to be non-filers ($51).

If the entire error was eliminated for these 31,000 cases, total savings would only be about $4 million. However, it would require up to 443,000 more limited validations. To the extent that a majority of non-filers are already selected by an existing PEC, the number of additional validations would be low.

Advantages of Validating Non-Filing Applicants

- This type of validation would be targeted to higher error cases.
- Financial Aid Officers would need to validate only one item for most cases claiming to be non-filers.

Disadvantages

- It would be difficult to document that people did not file.
- The option could produce a potentially large number of additional validations to the extent that existing PEC do not flag these cases.
- The burden on institutions would be large.
- The burden to low income students would be large.
- Even though targeted, this method requires a considerable number of validations to reach the seven percent who erroneously claimed to be non-filers.

Summary

Requiring proof that students claiming not to have filed tax forms did not, in fact, file tax forms reduces the probability of serious fraud or abuse in reporting income data. There is however, little evidence of widespread misreporting of non-filing. Verifying all non-filing would require a large-scale administrative effort in order to catch a relatively small amount of student award error.

	Number of Cases	Average Error
Claiming to be Non-Filers	443,000	$ 57
Verified to be Non-Filers	412,000	$ 51
Verified to be Filers	31,000	$ 135

TABLE 3-2

ERROR RATES FOR VERIFIED FILING STATUS

Option 5: Validation Of All Corrections

Proposed Policy Change

This option involves selection of all cases with corrections. Currently PEC only select cases having corrections leading to large changes in the eligibility index.

Likely Effects of Policy Change

Table 3-3 displays average student error by transaction number for all cases, non-validated cases, randomly selected cases, and cases selected for validation based on the PEC. While the pattern is not uniform, it does appear that cases with corrections, i.e., cases with transaction number greater than one, have higher average errors. Of the 1.3 million cases not already validated, about half a million, 28 percent, had at least one correction. Except for cases with four or five corrections, the error rates for cases with corrections are not dramatically higher than cases without corrections.

It would seem that additional selection would only be justified for those cases with four or more corrections.

Advantages of Validating All Corrections

- If restricted to cases with four or more corrections, this method would be well targeted and effective in terms of error removed.

Disadvantages

- Unless restricted, many students would be burdened.
- If unrestricted, the effectiveness, in terms of error removed, is fairly low.

Summary

Validation of corrections to student applications would reduce the incidence of students' making unsolicited changes to increase their award eligibility. The evidence from 1980-81 indicates that this option would be most effective if targeted to students making four or more corrections.

Transaction Number	All Cases		PEC Cases		Non-Validated Cases		Validated Cases	
	Number of Cases	Average Student Error	Number of Cases	Average Student Error	Number of Cases	Average Student Error	Number of Cases	Average Student Error
1	1,313,000	$ 75	4,000	$ -40	1,299,000	$ 75	10,000	$ 112
2	405,000	95	37,000	84	363,000	95	5,000	111
3	126,000	84	30,000	136	94,000	70	3,000	7
4	51,000	42	18,000	112	32,000	2	1,000	11
5	11,000	180	5,000	137	6,000	220	0	0
6	4,000	260	3,000	76	1,000	694	0	0
7+	1,000	59	0	-13	1,000	0	0	
	1,912,000		97,000		1,795,000		19,000	

FIGURE 3-3

AVERAGE STUDENT ERROR BY TRANSACTION NUMBER
BY VALIDATION TYPE

4

DEPENDENCY OPTIONS

Background

Current Pell Grant regulations use the answers to six questions to determine whether a student is independent or dependent. The determination of need and student aid is greatly affected by student status. If a student is determined to be independent, the parents' resources are not considered in determining eligibility. Furthermore, the income definition used for independent students allows for set-asides, deductions, and disregards not available to dependent students.

As a result of these two features of the need assessment system, there is a fairly sizeable incentive for students to claim independence from their parents. In addition, five of the six questions used to determine status are difficult to verify or check. The sixth question--whether or not the student was claimed as a tax deduction for the prior tax year--can only be validated by examining a copy of the parent's filed income tax return.

Since these six questions are difficult to answer and to verify, errors in dependency status easily can go undetected with resulting large overpayment. About 16 percent of independent students in 1980-81 were found to be dependent by the Quality Control study. The overawards to students who had reported dependency status incorrectly averaged over $450.

Current Policy

The program rules for determining dependency status in 1980-81 required students to answer no to each of the following six questions in order to be classified as an independent student:

- Student lived with parents more than six weeks in 1979?
- Student lived with parents more than six weeks in 1980?

- Student claimed by parents as tax exemption in 1979?
- Student claimed by parents as tax exemption in 1980?
- Student received more than $750 support from parents in 1979?
- Student received more than $750 support from parents in 1980?

A "yes" response to any one of the six questions resulted in the student being classified as a dependent student.

Option 1: Disallow Independent Status for Students Under 23 Years of Age

Proposed Policy Change

The proposed policy would not allow any student under 23 years old to be treated as an independent student. Students 23 years old or over would have dependency status determined by the same six questions used under current policy.

Likely Effects of the Change

It is difficult to estimate the likely effect of the proposed changes in defining dependency status. A full assessment would require information on the resources of parents of independent students. The data base used for the Quality Control study did not collect information from most of these parents.

Number of Recipients

It is possible to provide estimates of the number of currently independent students likely to be affected in that they would become dependent under this proposed policy change.

	Status Under 1980-81 Program Rules		
Age of Student	Independent	Dependent	Total
Under 23	167,000	1,194,000	1,361,000
23 or Over	520,000	212,000	732,000
All Ages	688,000	1,404,000	2,093,000

About 12 percent (167,000) of students under 23 years of age currently are classified as independent students; representing 8 percent of all students or 24 percent of all independent students. These students would not be classified as independent under the proposed policy change.

Eliminating independent status for students under 23 years of age would not eliminate all of this disbursement error. This is because in addition to error attributable to dependency status changes, disbursement error includes the consequences of all other reporting errors. It is not possible to allocate disbursement error calculated. Of this $65 million, about $38 million (59 percent) was associated with students under 23 years of age.

Program Expenditures -- The likely impact on program expenditures is impossible to estimate directly because of the limited nature of the data base. For purposes of this discussion several assumptions have been made.

Independent students under 23 years old received an average disbursement of $981: dependent students under 23 years of age received an average payment of $891. If parental resources, expenses, and other family circumstances were identical for dependent and independent students under 23 years of age, in spite of the differences in the responses to the six dependency status questions, the $90 difference in average payment would be eliminated. This elimination would reduce program expenditures by about $15 million. This should be taken as an upper limit to the extent that parents of independent students are in worse circumstances than parents of dependent students.

Program Error -- Based on the Stage One data, we would estimate that total disbursement error associated with those students of all ages who claimed to be independent but were found to be dependent amounted to about $65 million. This estimate is based on an extrapolation to the entire population of cases with dependency status error from data for cases where a disbursement error could be to particular application items when there is a dependency error because the

application items are conditionally defined based on reported dependency status.

Advantages

- Simplification of the application and validation process for students under 23 years old by eliminating six questions implies reduced costs.
- Program error would be reduced by eliminating the five questions which require estimation and/or projections.
- Option 1 would emphasize that student educational expenses are the joint responsibility of parents and students.
- Option 1 would possibly reduce program expenditures.

Disadvantages

- Eliminating independent status for young students would place an added burden on younger students who are, for whatever reason, not dependent on their parents.
- Option 1 would place a financial burden on parents whose child has severed all family connections.
- Option 1 would place additional importance on reporting of the student's age (or date of birth).

Summary

Restricting independent student status to students 23 or older would simplify the application process for younger students, thereby reducing costs. This option would also emphasize parental responsibility. Questions of equity are raised, however, in cases where parents can not, or will not, provide help to students under 23. The option would eliminate about half the award error associated with incorrect student status found in the 1980-81 QC study.

Option 2: Define Dependency Status Based on Tax Exemption Status

Proposed Policy Change

The proposed policy would eliminate four of the six questions used to classify students according to dependency status. The four questions to be eliminated involved whether or not the student received over $750 in support from parents in 1979 or 1980

and whether or not students lived or will live with their parents for 42 days in 1979 or 1980.

Dependency status would then be determined by the remaining two questions:

- Were you claimed as a tax exemption last year?
- Will you be claimed as a tax exemption for the current year?

Likely Effects of The Change

Number of Recipients -- About a quarter of a million students would be affected by the proposed change in dependency status. As the top panel of Table 4-1 indicates, about 215,000 students classified as dependent using application data under current rules would be classified as independent under the proposed change. Use of verified data (bottom panel) increases this estimate to 258,000. Both estimates are equal to about 10 percent of total Pell Grant recipients, and about 16 percent of students classified as dependent under current policy.

Income Distributive Effects -- Most of the students who became independent under the proposed policy are from families with low adjusted gross incomes. As Table 4-2 (left panel) indicates, 177,000 out of the 215,000 students who would become independent based on application data had zero, missing, or negative adjusted gross income.

While 16 percent of the dependent students become independent, the relative frequency is much higher for lower income groups. Since the change is concentrated in these low income groups, it would lessen the change in disbursements resulting from this option.

Error Rates -- Under current policy, we estimate (see Table 4-3, top panel) that the error rate on dependency status is 6.3 percent: most of these errors (5.9 percent) involve erroneously claiming independent status. The error rate under the new policy would decrease to about 6.1 percent; again, most of the error (5.0 percent) would involve false claims of independence.

Status Based on Proposed Policy and Application Data	Status Based on Current Policy and Application Data		
	Independent	Dependent	Total
Independent	881,000	215,000	1,096,000
Dependent	-	1,147,000	1,147,000
Total	881,000	1,362,000	2,243,000

Status Based on Proposed Policy and Verified Data	Status Based on Current Policy and Verified Data		
	Independent	Dependent	Total
Independent	755,000	258,000	1,013,000
Dependent	1,000	1,242,000	1,243,000
Total	756,000	1,500,000	2,256,000

TABLE 4-1

DEPENDENCY STATUS CHANGES USING APPLICATION AND VERIFIED DATA

Income Group	APPLICATION DATA			VERIFIED DATA		
	Number of Students: Baseline	Number Becoming Independent	Percent Change	Number of Dependent Students: Baseline	Number Becoming Independent	Percent Change
0 - 6,000	342,000	177,000	52%	350,000	165,000	47%
6,000 - 12,000	295,000	23,000	8%	308,000	35,000	11%
12,000 - 18,000	276,000	9,000	3%	269,000	18,000	7%
18,000 - 24,000	241,000	5,000	2%	206,000	10,000	5%
24,000 and over	225,000	1,000	0%	159,000	30,000	19%
	1,379,000	215,000	16%	1,292,000	258,000	20%

4-7

TABLE 4-2

INCOME DISTRIBUTIVE EFFECTS OF USING TAX EXEMPT STATUS AS DEPENDENCY CRITERIA

Status Based on Proposed Policy and Application Data	Status Based on Current Policy and Application Data: Independent	Dependent	Total
Independent	748,000	133,000	881,000
Dependent	8,000	1,370,000	1,378,000
Total	756,000	1,503,000	2,259,000

Status Based on Proposed Policy and Verified Data	Status Based on Current Policy and Verified Data:	Independent	Dependent
Independent	985	111	1,096
Dependent	25	1,122	1,147
Total	1,010	1,233	2,243

TABLE 4-3

DEPENDENCY STATUS ERROR: NUMBER OF STUDENTS

APPENDIX F

BACKGROUND DATA FOR SIMPLIFICATION OPTION 5: REPLACING HOUSEHOLD SIZE WITH NUMBER OF EXEMPTIONS FROM PRIOR YEAR'S TAX FORM

APPENDIX F

The changes in awards to 1980-81 recipients under Option 5 would be very minor.

Award Increases	Percent of 1980-81 Eligibles: Using Reported Application Data	Using All Verified Data
$ 3 - 50	.8	1.7
$ 51 - 150	2.7	4.3
$ 151 - 250	.5	1.5
$ 251 - 550	.2	.8
$ 551 + 0	0	
Award ± $2	88.6	86.6

Award Decreases	Percent of 1980-81 Eligibles: Using Reported Application Data	Using All Verified Data
$ 3 - 50	.7	.4
$ 51 - 150	3.7	2.3
$ 151 - 250	1.4	1.4
$ 251 - 550	1.0	.5
$ 551 +	.5	.4

A comparison of aggregate program expenditures for students in different income groups under Option 5 and the 1980-81 formula, using both application data and verified data, is shown in Figure F-1.

VERIFIED AGI	All SER: Using Household Recipients	All SER: Using Household Awards in Millions	All SER: Using Exemptions Recipients	All SER: Using Exemptions Awards in Millions	All SER: Using Verified Household Recipients	All SER: Using Verified Household Awards in Millions	All SER: Using Verified Exemptions Recipients	All SER: Using Verified Exemptions Awards in Millions	All Verified: Using Household Recipients	All Verified: Using Household Awards in Millions	All Verified: Using Exemptions Recipients	All Verified: Using Exemptions Awards in Millions
Independent Students												
$ 0 - 2,999	401,000	$ 397	400,000	$ 397	399,000	$ 396	400,000	$ 396	398,000	$ 394	399,000	$ 394
$ 3,000 - 5,999	172,000	159	168,000	155	169,000	158	168,000	155	167,000	156	167,000	155
$ 6,000 - 8,999	71,000	60	70,000	57	70,000	58	69,000	57	67,000	55	67,000	54
$ 9,000 - 11,999	57,000	43	54,000	42	54,000	42	55,000	42	50,000	37	52,000	37
$12,000 +	38,000	24	35,000	23	38,000	24	35,000	24	31,000	17	29,000	16
Total	739,000	$ 683	727,000	$ 674	730,000	$ 678	727,000	$ 674	713,000	$ 659	714,000	$ 656
Dependent Students												
$ 0 - 5,999	342,000	$ 377	341,000	$ 374	342,000	$ 374	341,000	$ 374	350,000	$ 384	347,000	$ 383
$ 6,000 - 11,999	295,000	310	294,000	304	294,000	306	294,000	304	308,000	311	309,000	310
$12,000 - 17,999	276,000	261	275,000	260	273,000	259	275,000	261	269,000	243	269,000	245
$18,000 - 23,999	241,000	175	239,000	175	237,000	171	240,000	175	206,000	146	210,000	150
$24,000 +	225,000	124	222,000	123	216,000	119	222,000	123	159,000	86	164,000	88
Total	1,379,000	$1,247	1,371,000	$1,236	1,362,000	$1,229	1,372,000	$1,237	1,292,000	$1,170	1,299,000	$1,176
TOTAL POPULATION	2,118,000	$1,930	2,098,000	$1,910	2,092,000	$1,907	2,099,000	$1,911	2,005,000	$1,829	2,013,000	$1,832

FIGURE F-1

IMPACT OF SUBSTITUTING NUMBER OF EXEMPTIONS FOR HOUSEHOLD SIZE*
IN THE SEI COMPUTATION FOR SEI-ELIGIBLES IN THE 1980-81 STUDY

*Number of exemptions is imputed for cases missing this data.

Advantages of Proposed Policy Change

- This proposal would eliminate four of the six questions used to classify students. This would result in:
  - reduced application costs
  - reduced error by eliminating four questions requiring estimation and/or projections
  - increased program credibility by having easily verified data elements determining dependency status
- Students affected by this option are more likely to be lower-income students who are unlikely to have large payment changes as a result of this option.

Disadvantages of Proposed Policy Change

- This option has the possibility of increasing program expenditures.
- This option may reduce equity, as defined under current rules, in that students living with and/or receiving support from parents would not have parental resources counted in determining need.

Summary

Basing student dependency status solely on status as a tax exemption would simplify the application process and make dependency far easier to verify. The redistributive effect of the change on low-income students would be fairly small. Students receiving help from parents but who are not claimed as exemptions would benefit from the change; this could lead to significant increases in program expenditures.

Option 3: Requiring Copy of Parental Tax Form to Verify Tax Exemption Status

Current Policy

Of the six questions used to determine student status, only one is easily verified: was student claimed as a tax deduction for the prior tax year? In 1980-81, only students selected for validation were required to verify this potentially important program element.

Proposed Policy Change

The proposed policy would require students to document the fact that they are not being claimed by their parents as a tax exemption. A copy of the parents' tax form would be considered as appropriate documentation.

Likely Effects of the Change

Volume 1 of the Quality Control report estimated that about 6 percent of the cases had dependency status error: the overwhelming situation involved students incorrectly claiming to be independent. Table 4-4 illustrates the incidence of error for the prior year tax exemption item by age of student.

For students over 22 years of age, the occurrence of error is fairly low, between 0 and 4 percent. Younger students had error rates on this item of between 3 and 6 percent.

Table 4-5 demonstrates that for cases with status errors, requiring documentation that the student was not claimed as a 1979 parental tax exemption is an effective tool. The proportion of cases with status error for which we had any documentation that the student was claimed ranges from 43 percent to nearly 62 percent for students who are between 20 and 24 years of age.

While requiring a tax form would be quite effective in identifying cases with status error, the incidence of status error for students between 20 and 24 years of age ranges from about 5 percent to about 12 percent. Therefore, requiring parental tax forms may be the most effective way of identifying status error; it also places a substantial burden on the 90 to 95 percent of the students who were correctly classified.

Advantages

- This option would require the student to document that he/she was not claimed as a parental tax exemption. This would result in:
  - reduced program error
  - reduced program expenditures
  - increased equity by correctly classifying students.

Age of Student	Percentage with Error on 1979 Tax Exemption Question
18	6%
19	4%
20	5%
21	3%
22	4%
23	2%
24	4%
25	1%
26-30	1%
31-40	0%
41+	0%

TABLE 4-4

FREQUENCY OF ERROR ON 1979 TAX EXEMPTION QUESTION, BY AGE OF STUDENT

Age of Student	Percentage of Cases With Status Error	Percentage of Status Error Cases With Error on Tax Exemption Question
19	0.6%	7.4%
20	4.5	55.5
21	6.5	61.7
22	12.4	61.0
23	6.9	53.1
24	10.1	42.8
25	12.7	15.3
26-30	7.9	23.9
31-40	6.6	27.9
41+	2.9	0

TABLE 4-5

STATUS ERROR AND TAX EXEMPTION ERROR
BY AGE OF STUDENT

Disadvantages

- Option 3 would place an increased burden on all students
- While this option is effective in identifying status errors, the frequency of status errors is fairly low.
- This option would place an increased burden on emancipated students.

Summary

Requiring a copy of independent students' parents' tax forms could reduce dependency status error. It would, however, require a substantial administrative effort to identify a relatively small number of cases with error.

APPENDIX A

SUMMARY TABLES FOR ALL SIMPLIFICATION OPTIONS AND DATA CONCERNING NUMBER IN POSTSECONDARY EDUCATION

VERIFIED AGI	1980-81 Formula		VERIFIED DATA							
			Option 1		Option 2		Option 3		Option 4	
	Recipients	Mean Award	Recipients	Mean Award	Recipients	Mean Award	Recipients	Mean Award	Recipients	Mean Award
Independent Students										
$ 0 - 2,999	398,000	$ 990	402,000	$1,022	400,000	$ 986	400,000	$ 985	400,000	$ 985
$ 3,000 - 5,999	167,000	934	171,000	963	167,000	934	167,000	936	167,000	936
$ 6,000 - 8,999	67,000	820	65,000	845	64,000	820	65,000	816	65,000	816
$ 9,000 - 11,999	50,000	740	51,000	619	48,000	614	50,000	631	50,000	632
$12,000 +	31,000	548	13,000	496	12,000	502	22,000	517	22,000	517
Total	713,000	$ 924	702,000	$ 953	691,000	$ 924	703,000	$ 918	704,000	$ 918
Dependent Students										
$ 0 - 5,999	350,000	$1,097	357,000	$1,151	348,000	$1,044	348,000	$1,096	348,000	$1,096
$ 6,000 - 11,999	308,000	1,010	333,000	1,088	315,000	1,008	316,000	1,022	316,000	1,024
$12,000 - 17,999	269,000	903	300,000	933	284,000	850	285,000	899	285,000	899
$18,000 - 23,999	206,000	709	258,000	640	220,000	580	229,000	695	229,000	704
$24,000 +	159,000	540	113,000	342	76,000	332	167,000	519	167,000	522
Total	1,292,000	$ 906	1,360,000	$ 924	1,243,000	$ 879	1,346,000	$ 897	1,346,000	$ 899
TOTAL POPULATION	2,005,000	$ 912	2,062,000	$ 935	1,934,000	$ 906	2,050,000	$ 904	2,050,000	$ 906

A-1

FIGURE A-1

SAI SIMPLIFICATION OPTIONS: IMPACT ON 1980-81 SEI-ELIGIBLES
USING VERIFIED DATA

VERIFIED AGI	1980-81 Formula		Option 1		Option 2		Option 3		Option 4	
	Recipients	Mean Award	Recipients	Mean Award	Recipients	Mean Award	Recipients	Mean Award	Recipients	Mean Award
Independent Students										
$ 0 - 2,999	401,000	$ 990	405,000	$1,026	396,000	$ 988	398,000	$ 987	398,000	$ 987
$ 3,000 - 5,999	172,000	924	174,000	978	168,000	938	169,000	938	169,000	938
$ 6,000 - 8,999	71,000	845	69,000	848	67,000	828	68,000	825	68,000	825
$ 9,000 - 11,999	57,000	754	54,000	667	52,000	660	53,000	681	53,000	681
$12,000 +	38,000	632	20,000	631	20,000	629	30,000	600	30,000	600
Total	739,000	$ 924	723,000	$ 959	703,000	$ 927	717,000	$ 921	718,000	$ 921
Dependent Students										
$ 0 - 5,999	342,000	$1,102	357,000	$1,144	340,000	$1,092	340,000	$1,099	340,000	$1,099
$ 6,000 - 11,999	295,000	1,051	334,000	1,089	288,000	1,028	289,000	1,043	289,000	1,043
$12,000 - 17,999	276,000	946	301,000	950	273,000	900	274,000	954	274,000	954
$18,000 - 23,999	241,000	726	264,000	656	231,000	618	236,000	744	236,000	744
$24,000 +	225,000	551	127,000	386	103,000	388	204,000	576	203,000	576
Total	1,379,000	$ 904	1,383,000	$ 926	1,235,000	$ 887	1,343,000	$ 916	1,343,000	$ 916
TOTAL POPULATION	2,118,000	$ 911	2,106,000	$ 937	1,939,000	$ 901	2,061,000	$ 918	2,061,000	$ 918

A-2

FIGURE A-2

SIMPLIFICATION OPTIONS: IMPACT ON 1980-81 SEI-ELIGIBLES
USING SER (APPLICATIONS) DATA

Verified Adjusted Gross Income	Change in SEI-Eligible Population Eligible for Payment Using Verified 1980-81 Data* (Change in Percent)				SEI-Ineligible Applicants Becoming Eligible for Payment Based on 1978-79 Merged Applicant/Recipient Data (Estimated Percent)			
	Option 1	Option 2	Option 3	Option 4	Option 1	Option 2	Option 3	Option 4
Independent Students								
$ 0 - 2,999	+1	+1	+1	+1	33	10	10	10
$ 3,000 - 5,999	+2	0	+1	+1	66	38	38	38
$ 6,000 - 8,999	-3	-4	-3	-3	17	8	9	9
$ 9,000 - 11,999	+2	-4	0	0	18	5	5	5
$12,000 +	-58	-61	-29	-29	5	2	2	2
Total	-2	-3	-1	-1	8	3	3	3
Dependent Students								
$ 0 - 5,999	+8	-1	-1	-1	80	46	36	37
$ 6,000 - 11,999	+8	+2	+3	+3	93	52	57	58
$12,000 - 17,999	+12	+6	+6	+6	84	44	46	46
$18,000 - 23,999	+25	+7	+11	+11	81	49	43	43
$24,000 +	-29	-52	+1	+1	11	3	13	13
Total	+5	-4	+4	+4	27	12	21	21
ALL RECIPIENTS	+3	-4	+2	+2	24	11	17	17

A-3

* Based on verified student data and verified enrollment and cost of attendance data.

Option 1: Eligibility based on family adjusted gross income, nontaxable income, taxes paid and number of exemptions.

Option 2: Eligibility based on items in Option 1 plus liquid assets (investments, cash and savings, including student savings) and dependent student/spouse income.

Option 3: Eligibility based on items in Option 2 plus number in post-secondary education.

Option 4: Eligibility based on items in Option 3 plus medical/dental expenses.

FIGURE A-3

DIFFERENCES IN POPULATION ELIGIBLE FOR PAYMENT BY INCOME GROUP UNDER ALTERNATIVE SIMPLIFICATION OPTIONS

VERIFIED AGI	Number in College from Application				Number in College Limited to 1			
	All SER		All Verified		All SER		All Verified	
	Recipients	Awards in Millions	Recipients	Awards in Millions	Recipients	Awards in Millions	Recipients	Awards in Millions
Independent Students								
$ 0 - 2,999	401,000	$ 397	398,000	$ 394	400,000	$ 397	398,000	$ 394
$ 3,000 - 5,999	172,000	159	167,000	156	172,000	159	167,000	156
$ 6,000 - 8,999	71,000	60	67,000	55	71,000	59	67,000	55
$ 9,000 - 11,999	57,000	43	50,000	37	56,000	42	50,000	36
$12,000 +	38,000	24	31,000	17	32,000	19	26,000	12
Total	739,000	$ 683	713,000	$ 659	731,000	$ 676	708,000	$ 653
Dependent Students								
$ 0 - 5,999	342,000	$ 377	350,000	$ 384	342,000	$ 375	349,000	$ 383
$ 6,000 - 11,999	295,000	310	308,000	311	293,000	304	305,000	305
$12,000 - 17,999	276,000	261	269,000	248	265,000	243	259,000	226
$18,000 - 23,999	241,000	175	206,000	146	216,000	143	187,000	119
$24,000 +	225,000	124	159,000	86	117,000	49	78,000	30
Total	1,379,000	$1,247	1,292,000	$1,170	1,233,000	$1,114	1,178,000	$1,063
TOTAL POPULATION	2,118,000	$1,930	2,005,000	$1,829	1,964,000	$1,790	1,886,000	$1,716

FIGURE A-4

SIMULATION OMITTING NUMBER IN POST-SECONDARY EDUCATION FROM THE SEI COMPUTATION (80-81 FORMULA)

VERIFIED AGI	Number in College from Application: All SER (Applicant Data) Recipients	Awards in Millions	Mean	Number in College Verified: Other (Using Applicant Data) Recipients	Awards in Millions	Mean
Independent Students						
$ 0 - 2,999	401,000	$ 397	$ 990	401,000	$ 398	$ 992
$ 3,000 - 5,999	172,000	159	924	172,000	159	924
$ 6,000 - 8,999	71,000	60	845	71,000	60	837
$ 9,000 - 11,999	57,000	43	754	57,000	43	761
$12,000 +	38,000	24	632	38,000	24	646
Total	739,000	$ 683	$ 924	739,000	$ 683	$ 926
Dependent Students						
$ 0 - 5,999	342,000	$ 377	1,102	342,000	377	1,100
$ 6,000 - 11,999	295,000	310	1,051	294,000	309	1,052
$12,000 - 17,999	276,000	261	946	273,000	260	952
$18,000 - 23,999	241,000	175	726	235,000	173	737
$24,000 +	225,000	124	551	204,000	114	558
Total	1,379,000	$ 1,247	$ 904	1,348,000	$ 1,232	$ 914
TOTAL POPULATION	2,118,000	$ 1,930	$ 911	2,086,000	$ 1,916	$ 918

FIGURE A-5

MARGINAL IMPACT OF VERIFYING NUMBER IN POST-SECONDARY EDUCATION
(80-81 FORMULA)

APPENDIX B

BACKGROUND DATA ON SIMPLIFICATION OPTION 1: AGI, NONTAXABLE INCOME, TAXES PAID, AND NUMBER OF EXEMPTIONS

APPENDIX B

The overall effect of Option 1 on program expenditures for 1980-81 eligibles would be small (Figure B-1). Most recipients' awards would change by less than $150:

	Percent of 1980-81 Eligibles	
Awards Increasing Under Option 1	**Application Data**	**Verified Data**
$ 3 - 50	34	32
$ 51 - 150	18	17
$151 - 250	3	4
$251 - 550	3	6
More than $550	2	6
Awards Within $2	9	11
Awards Decreasing* Under Option 1		
$ 3 - 50	4	4
$ 51 - 150	7	5
$151 - 250	8	5
$251 - 550	9	7
More than $550	4	3

*Does not include six percent not eligible for awards under Option 1.

Option 1 would increase the proportion of Pell applicants who would qualify for grants. As Figure A-3 indicates, close to one-fourth of the ineligibles in the sample of 1978-79 program year would have become eligible for awards using the Option 1 formula. While this figure may over-estimate the proportion of students becoming eligible (income data does not reflect inflation from 1978-79 to 1980-81), it is reasonable to assume that the increase in recipients would be significant. This increase would result from income-poor recipients possessing assets such as homes, businesses, farms, investments, or savings who would be eligible for awards under the Option 1 formula.

VERIFIED AGI	1980-81 Awards Based on Application (SER) Data				1980-81 Awards Based on Verified Data			
	1980-81 Formula		Option 1 Formula		1980-81 Formula		Option 1 Formula	
	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards
Independent Students								
$ 0 - 2,999	18.9	20.6	19.2	21.0	19.9	21.5	19.5	21.3
$3,000 - 5,999	8.1	8.2	8.3	8.6	8.3	8.5	8.3	8.4
$6,000 - 8,999	3.3	3.1	3.3	3.0	3.3	3.0	3.2	2.9
$9,000 - 11,999	2.9	2.2	2.6	1.8	2.5	2.0	2.5	1.7
$12,000 +	1.8	1.2	1.0	.7	1.5	1.0	.6	.6
Total	34.9	35.4	34.3	35.1	35.6	36.0	34.1	34.8
Dependent Students								
$ 0 - 5,999	16.1	19.5	17.0	20.7	17.5	21.0	17.3	20.5
$6,000 - 11,999	13.9	16.1	15.9	18.4	15.4	17.0	16.2	17.4
$12,000 - 17,999	13.0	13.5	14.3	14.5	13.2	13.9	14.6	13.8
$18,000 - 23,999	11.3	9.1	12.5	8.8	10.3	8.0	12.5	8.7
$24,000 +	10.6	6.4	6.0	2.5	7.9	4.7	5.4	4.7
Total	65.1	64.6	65.7	64.9	64.4	64.0	65.9	65.2
TOTAL POPULATION	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

FIGURE B-1

DISTRIBUTION OF AWARDS TO 1980-81 RECIPIENTS
OPTION 1: FAMILY INCOME AND NUMBER OF EXEMPTIONS ONLY

Option 1 would affect the highest income groups far more negatively than the others (Figure B-2). Under this restricted need analysis system, the number of 1980-81 eligible independent students with adjusted gross incomes of over $12,000 receiving awards would drop by more than half, and the number of dependent recipients with adjusted gross incomes over $24,000 would fall by 29 percent. Under the 1980-81 formula, these students were eligible because of relatively large offsets to income not allowed for by the Option 1 formula, such as number of family members in postsecondary education, medical expenses, or business, home, farm, or investment debts.

Option 1, by severely restricting the number of data elements included in the eligibility formula, provides an automatic means of reducing program error.

A comparison of student error under the 1980-81 formula to student error using the Option 1 formula demonstrates that error is significantly reduced by using only the elements in Option 1:

	Percent of Cases	
Award Error	All Student Error 1980-81	All Student Error Option 1
- $551 and less	.7	.3
- $251 to - $550	2.1	1.2
- $151 to - $250	1.6	1.3
- $ 51 to - $150	3.0	2.1
- $ 3 to - $ 50	2.0	2.3
$ 2 to - $ 2	59.7	78.5
$ 3 to $ 50	4.9	5.1
$ 51 to $150	5.7	2.9
$151 to $250	4.7	1.9
$251 to $550	7.6	2.5
More than $550	7.9	2.0

VERIFIED AGI	Application Data: Recipients	Application Data: Awards in Millions	Verified Data: Recipients	Verified Data: Awards in Millions
Independent Students				
$ 0 - 2,999	405,000	$ 415	402,000	$ 411
$ 3,000 - 5,999	174,000	170	171,000	165
$ 6,000 - 8,999	69,000	59	65,000	55
$ 9,000 - 11,999	54,000	36	51,000	31
$ 12,000 +	20,000	13	13,000	6
Total	722,000	$ 693	702,000	$ 668
Dependent Students				
$ 0 - 5,999	357,000	$ 409	357,000	$ 411
$ 6,000 - 11,999	334,000	364	333,000	362
$ 12,000 - 17,999	301,000	287	300,000	280
$ 18,000 - 23,999	264,000	173	258,000	164
$ 24,000 +	127,000	59	113,000	38
Total	1,383,000	$ 1,292	1,361,000	$ 1,255
TOTAL POPULATION	2,106,000	$ 1,974	2,062,000	$ 1,926

FIGURE B-2

ESTIMATED AWARDS TO SEI-ELIGIBLES IN 1980-81 SAMPLE
OPTION 1: FAMILY INCOME AND NUMBER OF EXEMPTIONS

APPENDIX C

BACKGROUND DATA ON SIMPLIFICATION OPTION 2: AGI, TAXES PAID, NUMBER OF EXEMPTIONS, NONTAXABLE INCOME, LIQUID ASSETS, AND DEPENDENT STUDENT INCOME

APPENDIX C

The overall effect of Option 2 on program expenditures for 1980-81, as depicted in Figure C-1, would be quite small, except that payments to higher income students are reduced.

The impact on individuals participating in the program in 1980-81 would also be very minor; most awards would change by $50 or less.

	Percent of 1980-81 Eligibles	
Awards Increasing Under Option 2	**Application Data**	**Verified Data**
$ 3 - 50	1	1
$ 51 - 150	2	2
$151 - 250	1	2
$251 - 550	2	3
More than $550	1	.2
Awards Within $2	42	47
Awards Decreasing Under Option 2*		
$ 3 - 50	19	18
$ 51 - 150	10	8
$151 - 250	7	6
$251 - 550	11	8
More than $550	4	3

*Does not include approximately 9 percent not getting awards under Option 2.

Under Option 2, the same currently ineligible applicants would become eligible for Pell Grants. Approximately 11 percent of 1978-79 ineligibles would become eligible under the Option 2 formula. These are students from low or middle income families who would be disqualified because of assets such as homes or investments. Most applicants from the highest income levels, however, would remain ineligible. Figure C-2 shows the distribution of recipients and awards by income group under Option 2.

VERIFIED AGI	1980-81 Awards Based on Application (SER) Data				1980-81 Awards Based on Verified Data			
	1980-81 Formula		Option 2 Formula		1980-81 Formula		Option 2 Formula	
	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards
Independent Students								
$ 0 - 2,999	18.9	20.6	20.4	22.4	19.9	21.5	20.7	22.8
$3,000 - 5,999	8.1	8.2	8.7	9.0	8.3	8.5	8.6	9.0
$6,000 - 8,999	3.3	3.1	3.5	3.2	3.3	3.0	3.3	3.0
$9,000 - 11,999	2.9	2.2	2.7	2.0	2.5	2.0	2.5	1.7
$12,000 +	1.8	1.2	1.0	.7	1.5	1.0	.6	.3
Total	34.9	35.4	36.3	37.3	35.6	36.0	35.7	36.9
Dependent Students								
$ 0 - 5,999	16.1	19.5	17.5	21.2	17.5	21.0	18.0	22.0
$6,000 - 11,999	13.9	16.1	14.8	16.9	15.4	17.0	16.3	18.4
$12,000 - 17,999	13.0	13.5	14.1	14.1	13.2	13.9	14.7	13.9
$18,000 - 23,999	11.3	9.1	11.9	8.2	10.3	8.0	11.4	7.4
$24,000 +	10.6	6.4	5.3	2.3	7.9	4.7	4.0	1.5
Total	65.1	64.6	63.7	62.7	64.4	64.0	64.3	62.2
TOTAL POPULATION	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

FIGURE C-1

DISTRIBUTION OF AWARDS TO 1980-81 RECIPIENTS
OPTION 2: OSFA PROPOSAL

Option 2 includes fewer data elements than the 1980-81 formula and the level of student award error is, as a result, lower.

Comparing student award error under the 1980-81 formula to student award error using the Option 2 formula demonstrates that the reduction per case error is significant:

Award Error	Percent of Cases: All Student Error 1980-81	Percent of Cases: All Student Error Option 2
- $551 and less	.7	.5
- $251 to - $550	2.1	1.1
- $151 to - $250	1.6	1.4
- $ 51 to - $150	3.0	2.3
- $ 3 to - $ 5	2.0	2.3
- $ 2 to $ 2	59.7	71.0
$ 3 to $ 50	4.9	6.1
$ 51 to $150	5.7	4.3
$151 to $250	4.7	3.2
$251 to $550	7.6	4.3
More than $550	7.9	3.5

VERIFIED AGI	Application Data: Recipients	Application Data: Awards in Millions	Verified Data: Recipients	Verified Data: Awards in Millions
Independent Students				
$ 0 - 2,999	396,000	$ 392	400,000	$ 394
$ 3,000 - 5,999	168,000	158	167,000	156
$ 6,000 - 8,999	67,000	56	64,000	53
$ 9,000 - 11,999	52,000	34	48,000	30
$ 12,000 +	20,000	12	12,000	6
Total	703,000	$ 652	691,000	$ 639
Dependent Students				
$ 0 - 5,999	340,000	$ 371	348,000	$ 380
$ 6,000 - 11,999	288,000	296	315,000	318
$ 12,000 - 17,999	273,000	246	284,000	241
$ 18,000 - 23,999	231,000	143	220,000	127
$ 24,000 +	103,000	40	76,000	25
Total	1,235,000	$ 1,096	1,243,000	$ 1,091
TOTAL POPULATION	1,939,000	$ 1,748	1,934,000	$ 1,730

C-4

FIGURE C-2

ESTIMATED AWARDS TO SEI-ELIGIBLES IN 1980-81 SAMPLE
OPTION 2: OSFA PROPOSAL

APPENDIX D

BACKGROUND DATA ON SIMPLIFICATION OPTION 3: AGI, TAXES PAID, NUMBER OF EXEMPTIONS, NONTAXABLE INCOME, LIQUID ASSETS, DEPENDENT STUDENT INCOME, AND NUMBER IN POSTSECONDARY EDUCATION

APPENDIX D

The overall effect of Option 3 on program expenditures, as depicted in Figure D-1, is very small. Awards to 1980-81 recipients change very little.

	Percent of 1980-81 Eligibles	
Awards Increasing Under Option 3	**Application Data**	**Verified Data**
$ 3 - 50	2%	1%
$ 51 - 150	3%	2%
$ 151 - 250	2%	2%
$ 251 - 550	3%	4%
More than $550	1%	3%
Awards Within $2	46%	49%
Awards Decreasing Under Option 3*		
$ 3 - 50	21%	19%
$ 51 - 150	13%	11%
$ 151 - 250	5%	4%
$251 - 550	3%	2%
More than $550	1%	1%

*Does not include approximately 3 percent not getting awards under Option 3.

Option 3 maintains the allowances for more than one family member in post-secondary education. In our simulation of 1980-81 data, this allowance permits about 100,000 students from relatively high income families (over $24,000) to receive grants. (See Appendix A, Figure A-4 for data showing the impact of this data element in the Pell award formula.) It should be noted, however, that this data element requires a projection on the part of applicants; error on this item is not insignificant. Figure A-5 in Appendix A shows the impact of error in reporting number in post-secondary education on the 1980-81 population.

VERIFIED AGI	1980-81 Awards Based on Application (SER) Data				1980-81 Awards Based on Verified Data			
	1980-81 Formula		Option 3 Formula		1980-81 Formula		Option 3 Formula	
	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards
Independent Students								
$ 0 - 2,999	18.9	20.6	19.2	20.7	19.9	21.5	19.5	21.3
$3,000 - 5,999	8.1	8.2	8.2	8.4	8.3	8.5	8.1	8.4
$6,000 - 8,999	3.3	3.1	3.3	3.0	3.3	3.0	3.2	2.9
$9,000 - 11,999	2.9	2.2	2.6	1.9	2.5	2.0	2.4	1.7
$12,000 +	1.8	1.2	1.5	1.0	1.5	1.0	1.1	.6
Total	34.9	35.4	34.8	35.0	35.6	36.0	34.3	34.9
Dependent Students								
$ 0 - 5,999	16.1	19.5	16.5	19.7	17.5	21.0	17.0	20.6
$6,000 - 11,999	13.9	16.1	14.0	15.9	15.4	17.0	15.4	17.4
$12,000 - 17,999	13.0	13.5	13.3	13.8	13.2	13.9	13.9	13.8
$18,000 - 23,999	11.3	9.1	11.5	9.3	10.3	8.0	11.2	8.6
$24,000 +	10.6	6.4	9.9	6.2	7.9	4.7	8.2	4.7
Total	65.1	64.6	65.2	65.0	64.4	64.0	65.7	65.1
TOTAL POPULATION	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

FIGURE D-1

DISTRIBUTION OF AWARDS TO 1980-81 RECIPIENTS
OPTION 3: "6-ELEMENT" OPTION PLUS NUMBER IN POST-SECONDARY EDUCATION

Figure D-2 shows the distribution of recipients and awards by income group under Option 3 reduces the rate of error resulting from misreporting of application data primarily by eliminating asset data (home value is an especially error-prone item), and by using number of exemptions as an estimate of household size. The reduction in error is significant.

Award Error	Percent of Cases: All Student Error 1980-81	All Student Error Option 3
- $551 and less	.7	.4
- $251 to - $550	2.1	1.7
- $151 to - $250	1.6	1.5
- $ 51 to - $ 50	3.0	2.8
- $ 3 to - $ 50	2.0	2.4
$ 2 to $ 2	59.7	67.3
$ 3 to $ 50	4.9	5.8
$ 51 to $150	5.7	4.7
$151 to $250	4.7	3.8
$251 to $550	7.6	5.4
More than $550	7.9	4.1

VERIFIED AGI	Application Data		Verified Data	
	Recipients	Awards in Millions	Recipients	Awards in Millions
Independent Students				
$ 0 - 2,999	398,000	$ 392	400,000	$ 395
$ 3,000 - 5,999	169,000	159	167,000	156
$ 6,000 - 8,999	68,000	56	65,000	53
$ 9,000 - 11,999	53,000	36	50,000	31
$ 12,000 +	30,000	18	22,000	12
Total	718,000	$ 661	704,000	$ 647
Dependent Students				
$ 0 - 5,999	340,000	$ 373	348,000	$ 381
$ 6,000 - 11,999	289,000	302	316,000	324
$ 12,000 - 17,999	274,000	262	285,000	257
$ 18,000 - 23,999	236,000	176	229,000	161
$ 24,000 +	203,000	117	167,000	88
Total	1,342,000	$ 1,230	1,345,000	$ 1,211
TOTAL POPULATION	2,061,000	$ 1,891	2,050,000	$ 1,853

FIGURE D-2

ESTIMATED AWARDS TO SEI-ELIGIBLES IN 1980-81 SAMPLE
OPTION 3: "6-ELEMENT" OPTION PLUS NUMBER IN POST-SECONDARY EDUCATION

APPENDIX E

BACKGROUND DATA FOR SIMPLIFICATION OPTION 4: AGI, TAXES PAID, NUMBER OF EXEMPTIONS, NONTAXABLE INCOME, LIQUID ASSETS, DEPENDENT STUDENT INCOME, NUMBER IN POSTSECONDARY EDUCATION AID UNUSUAL MEDICAL EXPENSES

APPENDIX E

The overall effect of Option 4 in program expenditures, as depicted in Figure E-1, is very small. Awards to 1980-81 recipients would also change very little under Option 4.

All Student Error Award Error	Percent of Cases: All Student Error 1980-81	Option 4
- $551 and less	.7	.4
- $251 to- $550	2.1	1.8
- $151 to- $250	1.6	1.5
- $ 51 to- $150	3.0	2.8
- $ 3 to- $ 50	2.0	2.4
- $ 2 to $ 2	59.7	67.3
$ 3 to $ 50	4.9	5.8
$ 51 to $150	5.7	4.7
$151 to $250	4.7	3.8
$251 to $550	7.6	5.4
More than $550	7.9	4.0

The average award to recipients from the 1980-81 QC study would be $6 smaller under Option 4 than under the 1980-81 formula. Over 97 percent of those eligible for 1980-81 would also receive awards under Option 4. There is very little difference in the size of the awards calculated under the 1980-81 formula and the Option 4 formula.

VERIFIED AGI	1980-81 Awards Based on Application (SER) Data				1980-81 Awards Based on Verified Data			
	1980-81 Formula		Option 4 Formula		1980-81 Formula		Option 4 Formula	
	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards	Percent Recipients	Percent Awards
Independent Students								
$ 0 - 2,999	18.9	20.6	19.3	20.7	19.9	21.5	19.5	21.3
$3,000 - 5,999	8.1	8.2	8.2	8.4	8.3	8.5	8.1	8.4
$6,000 - 8,999	3.3	3.1	3.3	3.0	3.3	3.0	3.2	2.9
$9,000 - 11,999	2.9	2.2	2.6	1.9	2.5	2.0	2.4	1.7
$12,000 +	1.8	1.2	1.5	1.0	1.5	1.0	1.1	.6
Total	34.9	35.4	34.8	35.0	35.6	36.0	34.3	34.8
Dependent Students								
$ 0 - 5,999	16.1	19.5	16.5	19.7	17.5	21.0	17.0	20.5
$6,000 - 11,999	13.9	16.1	14.0	15.9	15.4	17.0	15.4	17.4
$12,000 - 17,999	13.0	13.5	13.3	13.8	13.2	13.9	13.9	13.8
$18,000 - 23,999	11.3	9.1	11.5	9.3	10.3	8.0	11.2	8.7
$24,000 +	10.6	6.4	9.9	6.2	7.9	4.7	8.2	4.7
Total	65.1	64.6	65.2	65.0	64.4	64.0	65.7	65.2
TOTAL POPULATION	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

FIGURE E-1

DISTRIBUTION OF AWARDS TO 1980-81 RECIPIENTS
OPTION 4: "6-ELEMENT" OPTION PLUS MEDICAL EXPENSES
AND NUMBER IN POST-SECONDARY EDUCATION

	Percent of 1980-81 Eligibles	
Awards Increasing Under Option 4	**Application Data**	**Verified Data**
$ 3 - 50	2	1
$ 51 - 150	3	2
$ 151 - 250	2	2
$ 251-550	3	4
More than $550	1	3
Awards Within $2	46	49
Awards Decreasing Under Option 4*		
$ 3 - 50	21	20
$ 51 - 150	13	11
$ 151 - 250	5	4
$ 251 - 550	3	2
More than $550	1	1

*Does not include approximately 3 percent not getting awards under Option 4.

Inclusion of the unusual medical expense allowance has very little measurable impact on the number of recipients; it increases the average award to all recipients by about $2. Most of the benefit of the allowance goes to higher income students. Figure E-2 shows the distribution of recipients and awards by income group under Option 4.

Option 4 reduces the rate of error resulting from misreporting of application data primarily by eliminating asset data, and by using number of exemptions rather than household size. The reduction in errors is significant.

VERIFIED AGI	Application Data: Recipients	Application Data: Awards in Millions	Verified Data: Recipients	Verified Data: Awards in Millions
Independent Students				
$ 0 - 2,999	398,000	$ 392	400,000	$ 395
$ 3,000 - 5,999	169,000	159	167,000	156
$ 6,000 - 8,999	68,000	56	65,000	53
$ 9,000 - 11,999	53,000	36	50,000	31
$ 12,000 +	30,000	18	22,000	12
Total	718,000	$ 661	704,000	$ 647
Dependent Students				
$ 0 - 5,999	340,000	$ 373	348,000	$ 381
$ 6,000 - 11,999	289,000	302	316,000	324
$ 12,000 - 17,999	274,000	262	285,000	257
$ 18,000 - 23,999	236,000	176	229,000	161
$ 24,000 +	203,000	117	167,000	88
Total	1,342,000	$ 1,230	1,345,000	$ 1,211
TOTAL POPULATION	2,061,000	$ 1,892	2,050,000	$ 1,857

FIGURE E-2

ESTIMATED AWARDS TO SEI-ELIGIBLES IN 1980-81 SAMPLE
OPTION 4: "6-ELEMENT" OPTION PLUS MEDICAL EXPENSES
AND NUMBER IN POST-SECONDARY EDUCATION